

REMARKS

Claims 1-15 and 17-33 remain pending in the present Application. Claim 16 was previously canceled. Claims 1-13 and 27-31 were previously withdrawn from consideration

Claim 26 has been amended, leaving claims 14, 15, 17,-26, 32, and 33 for consideration in the present amendment. Claim 26 has been amended to provide greater clarity to the claim language. It is believed that the amendments made herein may be properly entered at this time, i.e., after final rejection, because the amendments do not require a new search or raise new issues and reduce issues for appeal. No new matter has been introduced by these amendments.

Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Claim Rejection Under 35 USC 112

Claim 26 stands rejected under 35 USC 112, second paragraph, as being indefinite.

The amendment to claim 26 renders the rejection moot. Accordingly, the rejection should be withdrawn.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 14, 15, 17-20, 22-26, 32 and 33 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by Raoux (US Pat. No. 7,004,107). Applicants respectfully traverse this rejection.

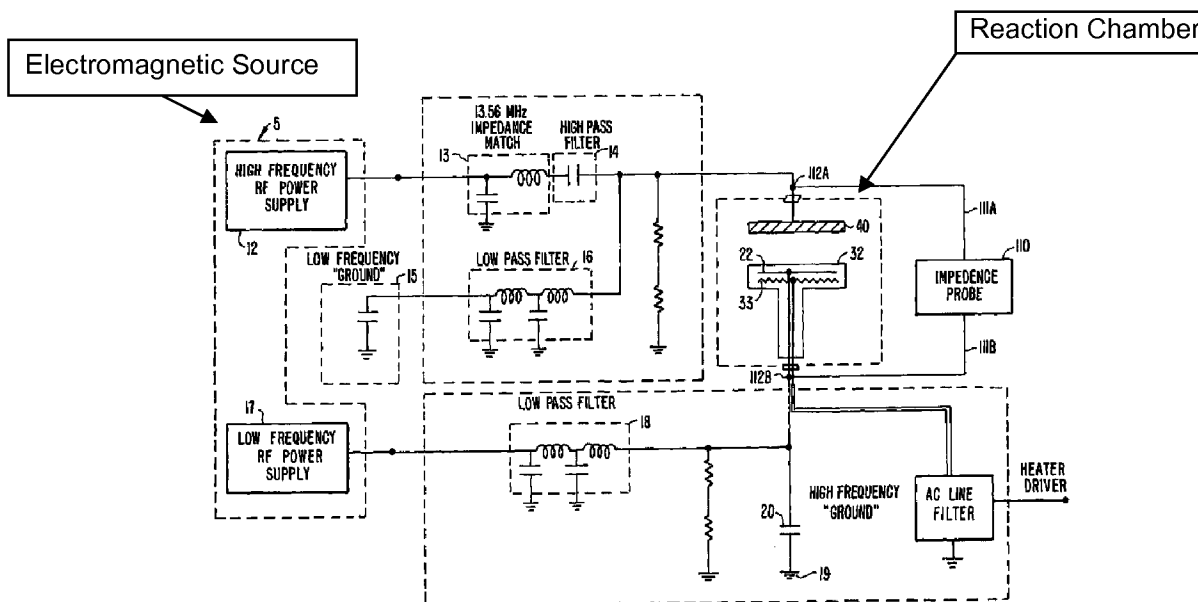
“[A] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, *in a single prior art reference.*” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Moreover, “[t]he identical invention must be shown in as complete detail as is contained in the claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, the single source must disclose all of the claimed elements

“*arranged as in the claim.*” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984) (Emphasis added).

Raoux fails to anticipate Claims 14, 15, 17-20, 22-26, 32 and 33 because there is no disclosure of a material detection system comprising, *inter alia*, a volatilizing electromagnetic energy source downstream from the plasma processing chamber coupled to the flow path for exciting said medium of interest so as to volatilize the solid material when present as in independent claim 14 or of a plasma based semiconductor material removal system comprising, *inter alia*, a volatilizing electromagnetic energy source coupled to an effluent carrying conduit downstream from a plasma processing chamber, wherein the volatilizing electromagnetic energy source is configured to cause excitation of a gas having reactive species therein, wherein the excited gas may include a solid material a gaseous byproduct, and combinations thereof removed from a semiconductor work-piece, and wherein the excitation is effective to volatilize the solid material when present as in independent claim 19.

In the Office’s “Response to Arguments” section on page 2 of the present Office Action, the Examiner comments that the claim language used in claims 14 and 19 recites the source of the electromagnetic energy to be downstream of the processing chamber. Applicants agree with this interpretation. However, Applicants vehemently disagree that Raoux’s electromagnetic source is downstream of the process chamber and that Applicants purportedly admitted this on page 11 of its last response. Applicants made no such admission. Moreover, Raoux’s electromagnetic source is not downstream of the process chamber. If anything, the figure shown on page 11 of Applicants’ last response clearly showed that the electromagnetic source was coupled to a gas distribution manifold and an electrode embedded within a pedestal, all of which are disposed within the processing chamber. In fact, in the previous Office Action, Applicants commented that Raoux discloses that “the RF source 5 is used to generate plasma within the reaction chamber 30 of the PECVD apparatus and the impedance probe serves to monitor the reaction conditions therein.” (Emphasis added).

For convenience, Applicants have again reproduced Raoux's FIG. 5 below, which clearly shows the RF source coupled to the gas distribution manifold and the pedestal within the reaction chamber. The RF source is not disposed downstream from the plasma processing chamber, which is a feature of independent claim 14, nor is it coupled to an effluent carrying conduit downstream from a plasma processing chamber, which is a feature of independent claim 19.



(Raoux, FIG. 5)

Moreover, Raoux admits within its detailed description that the RF source is coupled to the manifold (40) and the pedestal (32) as evidenced below:

Referring to FIG. 1, a CVD system 10 according to the present invention includes a reactor chamber 30, a vacuum system 88, a gas delivery system 89, an RF power supply 5, a heat exchange system 6, a ceramic pedestal 32 and a processor 85 among other major components. Of particular interest to the discussion of the present invention is the configuration of a gas distribution manifold (also referred to as an inlet manifold and as a "showerhead") 40 that introduces process gases supplied from gas delivery system 89 into a reaction zone 58 of chamber 30 and the configuration and *connections of RF power supply 5 to manifold 40 and to an electrode embedded within pedestal 32.*

(Raoux, Col. 6, ll. 9-20, emphasis added.)

Raoux requires that the RF source be coupled to the manifold and the pedestal so as to generate plasma within the reaction chamber. Without the RF source as disclosed, Raoux's CVD system would be utterly ineffective since no plasma would be generated to enable the chemical vapor deposition contemplated therein. Applicants were very clear that Raoux did not disclose a material detection system comprising, *inter alia*, a volatilizing electromagnetic energy source downstream from the plasma processing chamber coupled to the flow path for exciting said medium of interest so as to volatilize the solid material when present as in claim 14 or of a plasma based semiconductor material removal system comprising, *inter alia*, a volatilizing electromagnetic energy source coupled to an effluent carrying conduit downstream from a plasma processing chamber, wherein the volatilizing electromagnetic energy source is configured to cause excitation of a gas having reactive species therein, wherein the excited gas may include a solid material a gaseous byproduct, and combinations thereof removed from a semiconductor work-piece, and wherein the excitation is effective to volatilize the solid material when present as in claim 19. **Raoux fails to disclose an electromagnetic energy source downstream of the process chamber. This is a structural difference from the claimed invention. As such, there can be no anticipation since not every feature is disclosed.**

In view of the foregoing, the rejection is improper and should be withdrawn.

Claim Rejections Under 35 U.S.C. § 103(a)

Claim 21 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Raoux. Applicants respectfully traverse this rejection.

Claim 21 depends from claim 19 and as such, includes all of the features found in the base claim. As discussed above, Raoux fails to teach or even suggest an electromagnetic energy source coupled to an effluent carrying conduit downstream from a plasma processing chamber. In Raoux, the RF source 5 is coupled to a manifold and the pedestal within the reaction chamber 30 of the PECVD apparatus and the impedance probe 110 serves to monitor the reaction conditions therein. This is markedly different from Applicants claimed apparatus.

In view of the forgoing, the rejection is requested to be withdrawn.

It is believed that the foregoing remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

The Examiner is invited to contact Applicant's attorneys at the below listed telephone number regarding this Amendment or otherwise regarding the present application.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
CANTOR COLBURN LLP

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CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06130-3207
Telephone (404) 607-9991
Facsimile (404) 607-9981
Customer No.: 23413

By: /Peter R. Hagerty/
Peter R. Hagerty
Registration No. 42,618